

To: Terry, Robert[Terry.Robert@epa.gov]
From: LEE, LILY
Sent: Sat 2/27/2016 12:37:05 AM
Subject: RE: 2006 release criteria - would they meet current requirements?

Thank you for this! Could you also do this for the other chemicals in the release criteria table in the previous email?

Also I noticed Ra-226 is 0.044 pCi/L for 10E-4 risk in your table ,but the release criterion is 5.0. Does this concern you?

Lily Lee

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From: Terry, Robert
Sent: Friday, February 26, 2016 3:27 PM
To: LEE, LILY <LEE.LILY@EPA.GOV>
Subject: RE: 2006 release criteria - would they meet current requirements?

Below is a table that I made up using PRG calculator values for the corresponding values in Table 8-4. The footnotes should answer most your questions but feel free to call me if you require any clarification or elaboration.

SPRG (Surfaces) and PRG (Soil & Water) Calculator Results at the 1×10^{-4} Risk Level
Calculated 26-Feb-2016

Radionuclide	Surfaces dpm/100 cm ²		Soil pCi/g		Water pCi/L Equipment & Waste
	Equipment & Waste	Structures	Construction Worker	Residential	
Cesium-137	21201	21201	10.1	4.66	119
Cobalt-60	13165	13165	5.37	3.19	259
Plutonium-239	--	--	1360	3.57	25
Radium-226	5505	5505	2.33	0.63	0.044
Strontium-90	541680	541680	998	6.39	46

NOTES: ^aThe estimates for Surface PRGs are taken from the SPRG Calculator using default values for the 3-D direct external exposure indoor worker scenario. Requirements for building structure surfaces and for equipment & waste surfaces are taken to be the same, as per U.S. NRC Regulatory Guide 1.86 Termination of Operating Licenses for Nuclear Reactors dated June 1974 and reviewed December 2011.

^bThe estimates for Soil PRGs are taken from the PRG Calculator using default values for the outdoor worker and residential scenarios.

^cThe estimates for Water PRGs are taken from the PRG Calculator using default values for the residential scenario. Generally, MCLs for drinking water are preferred values for water.

^dBy agreement between the Navy and EPA Region 9 the remediation goal for soil is 1.0 pCi/g.

From: LEE, LILY

Sent: Friday, February 26, 2016 2:03 PM

To: Terry, Robert <Terry.Robert@epa.gov>

Subject: 2006 release criteria - would they meet current requirements?

Dear Rob,

Attached are the complete 2006 Hunters Pt Basewide Rad Removal Action Memo and the release criteria table that I excerpted from the full document. Below is an example of a ROD

that references the same release criteria, but specific to Parcel B.

How would you translate these criteria to risk? Would these criteria still result in cleanups within the EPA risk range using current EPA approaches?

TABLE 8-4: REMEDIATION GOALS FOR RADIOLOGICALLY IMPACTED SURFACES AND GROUNDWATER

Parcel B Amended Record of Decision, Hunters Point Shipyard, San Francisco

Remediation Goals for Radionuclides			
Radionuclide	Surfaces (dpm/100cm ²)		Construction Worker (pCi/L)
	Equipment, Waste ^a	Structures ^b	
Cesium-137	5,000	5,000	0.113
Cobalt-60	5,000	5,000	0.0602
Plutonium-239	100	100	14.0
Radium-226	100	100	1.0 ^d
Strontium-90	1,000	1,000	10.8

Notes:

- a Based on "AEC Regulatory Guide 1.86" (1974). Goals for removable surface contamination.
- b Goals are based on 25 millirem per year (EPA does not believe this NRC regulatory goal is protective of the general public. This regulation applies to sites that are undergoing TCRAs and any additional remedial action required for radiologically impacted portions of IR Sites 7 and 18 that will be transferred to the general public.)
- c EPA PRGs for two future use scenarios
- d Goal is 1 pCi/g above background per agreement with EPA
- e Release criteria for water were derived from "Radionuclides Notice of Data Availability" by comparing the limits from two criteria and using the most conservative value.
- f Goal is for total radium concentration
- g Also applies to scanned surface soil at IR Sites 7 and 18

AEC	Atomic Energy Commission	IR	Insoluble
ARAR	Applicable or relevant and appropriate requirement	NRC	Nuclear Regulatory Commission
cm ²	square centimeter	pCi/g	picocurie per gram
dpm	disintegration per minute	pCi/L	picocurie per liter
EPA	U.S. Environmental Protection Agency	PRG	Protective Remedial Goal

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